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ABSTRACT

This document is a position statement of the National Council of Teachers of Mathematics on instructional materials, including textbooks. First the point is made that the content, organization, and style of instructional materials are among the most important factors influencing outcomes of school mathematics programs. Then five standards are presented, concerning the review and selection committee, criteria for selection of instructional materials, the review of instructional materials, implementation of new instructional materials, and professional integrity. (MNS)

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Professional Standards for Selection and Implementation of Instructional Materials

The following statement is an official NCTM position.
It was developed by the Instructional Issues Advisory Committee and adopted by the Board of Directors.

THE CONTENT, organization, and style of instructional materials, particularly basal textbooks, are among the most important factors influencing outcomes of school mathematics programs. Thus, the process of selecting new textbooks and ancillary materials is a critical step in planning curricula and preparing for instruction. This process includes setting criteria, screening materials, making choices, and implementing the new program. Although teachers and students are vitally concerned with the quality of the instructional materials they must use, the selection and preparation for use of those materials are often constrained by inappropriate selection and implementation processes.

In order to improve curriculum and instruction in elementary and secondary mathematics programs, the National Council of Teachers of Mathematics has adopted the following standards for selecting instructional materials and implementing programs using those materials. The Council urges compliance with these standards by all school districts.

Standard 1: The Review and Selection Committee

The entire process of textbook selection should be led by teachers and supervisors with expertise and responsibility in mathematics education. Except in most unusual circumstances, the recommendations of the committee must be followed.

Membership on the Review and Selection Committee should include, but not necessarily be limited to, (1) classroom teachers representing the grades or courses for which instructional materials are being selected as well as teachers in grades or courses that precede or follow the target courses; (2) mathematicians or mathematics educators with knowledge of content, curriculum, and pedagogical trends covering the full spectrum of K-12 mathematics and beyond; and (3) school administrators who have overall responsibility for supporting and guiding the implementation of new programs.

Selection of committee members must be made in consultation with persons having expertise and responsibility in mathematics education. All persons selected should be full working members. Where the talents of a school or district mathematics staff cannot fulfill the roles described above, appropriate outside consultants should be obtained.

Standard 2: Criteria for Selection of Instructional Materials

Criteria for selection must be defined and made public prior to the review process.

The criteria should identify the desired instructional approach as well as the mathematics content. Criteria for selection should be based on program needs, which can be identified by—

- evaluation of the present program, including analysis of student achievement, attitudes, and learning characteristics and a survey of teacher opinions;
- current research on the teaching and learning of mathematics;
- recommendations of professional organizations;
- curriculum guidelines of local, state or provincial, and national governments.

Difficulties in implementation should be considered only if they seem insurmountable. Any adoption of new instructional materials will create some problems of implementation. However, the committee's goal should be the identification of the best possible program, not the easiest to implement.

Copyright dates and formula-determined reading levels are generally inappropriate as selection criteria. Although fashions in content and pedagogy change, a newer (or older) copyright does not assure higher quality. Because of the large technical vocabulary associated with mathematics, results of standard readability formulas should be used with extreme caution.

Standard 3: The Review of Instructional Materials

The Review and Selection Committee should actively seek materials from a variety of sources and evaluate the materials on the basis of the previously defined criteria.

The process of identifying, collecting, and examining material for potential adoption takes time to be done well. Time for committee members to do their work must be made available by the school system.

To identify appropriate instructional materials, the committee should consult—

- recommendations of teachers and supervisors in the district and in nearby districts having similar characteristics and goals;
- recommendations or authorizations of state or provincial committees where they exist;
- critical reviews in professional journals;
- independent information bases, such as the National Diffusion Network;
- representatives of all publishers of appropriate material.

Instructional materials developed by nonprofit organizations as well as commercial publishers should be considered. Whenever possible, committee representatives should examine materials displayed at a national or regional NCTM meeting. Interviews with members of the author team or a publisher's representative may also be helpful.

Once the materials for review have been collected, each should be evaluated for the—

- content coverage and development of each major curricular strand;
- development of the full range of cognitive abilities, especially problem solving and analysis;
- correlation of the content with local, state or provincial, or national scope-and-sequence guidelines;
- correlation of the content and instructional approach with research on mathematics teaching and learning;
- correlation of the content and instructional approach with the standards of professional mathematics organizations;
- correlation between textual features and characteristics of special students;
- evidence of success based on publishers' field-validation studies, implementation in other districts, critical reviews in professional journals and reports, or local field testing where possible;
- representation of the diversity of national social, political, and economic life.

Since the cost of instructional materials is only a small fraction of any school's budget, the cost of these materials should not be a factor. Potential financial savings do not justify the selection of less desirable materials. Where textbooks are accompanied by ancillary materials, however, it is important to assess the extent to which successful use of the text depends on such extra materials.

Standard 4: Implementation of New Instructional Materials

The selection of new instructional materials must be only part of a careful curriculum-development process that includes appropriate in-service preparation for teachers and supervisors and a formal evaluation of the new program's effectiveness.

In-service preparation should acquaint all teachers with the general program goals and the emphasis for each topic in every course. This emphasis should, where possible, be identified in terms of the appropriate number of instructional days to be devoted to each topic, and the topics should be correlated with specific portions of the new instructional materials. In-service preparation should also provide any necessary additional mathematics background as well as preferred instructional approaches to the mathematics content.

Implementation should include periodic evaluation surveys of teachers' and students' reactions to the materials as well as an analysis of student achievement. Results of these evaluations should be used to evaluate the achievement of the program goals and to plan for ongoing modification of the program. Implementation is typically more successful when such in-service support continues throughout the academic year.

Standard 5: Professional Integrity

The instructional materials selection process must not allow the professional integrity of the process to be compromised.

Any person connected with the process of selecting and implementing instructional materials who has a financial interest in any program being considered must make that interest known publicly at the outset. For the duration of the selection process those involved must not accept gifts of travel, entertainment, or materials from a vendor.

The instructional materials recommended by the Review and Selection Committee must be adopted unless irregularities in the selection process are documented.

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